Revitalizing the Green mindset: Environmental Sustainability approach towards Community Resilience

Introduction

Global communities are increasingly becoming more vulnerable to natural disasters. Besides the massive loss of invaluable human lives, the economic loss caused by natural disasters is mounting day by day (Brikmann, 2016). The nearest experience was the COVID-19 pandemic which paralyzed the entire world both economically and socially. In the period 2000 -2019, 7,348 major recorded disaster events were claiming 1.23 million lives, affecting 4.2 billion people (many on more than one occasion) and resulting in approximately US$ 2.97 trillion in global economic losses (UNDRR, 2020).

In face of the challenges posed by natural disasters, the concept of "resilience" started gaining much attention from individuals, organizations, and global communities at large. The term resilience simply means the ability to "bounce back". It is rooted in the Latin term "resiliere" which gives the similar meaning of "jumping back" (Paton & Johnston, 2006). Despite the appearance of the term being noted in general use for decades, ecology was the first scientific discipline to adopt the term in building its theoretical construction. Holling (1973) pioneered the use of the resilience concept in the field of ecology. Resilience is a multidimensional, socio technical phenomenon about how individuals or groups manage uncertainty.

The term community resilience, a branch of the resilience knowledge domain, is regarded as a way of protecting and empowering communities while enabling them to reduce the negative impacts of both environmental and socio-political challenges in their lives, livelihoods and dignity (Amul & Shrestha, 2015). Thus, building community resilience should primarily arise at individual, household and community levels (Silva, 2016). Community resilience relies on services and employment provided by the organizations to plan for, respond to, and recover from emergencies and crises (Lee, Vargo & Seville, 2013). Hence, the disaster preparedness, disaster response, and disaster recovery of organizations predict community resilience. Simply, more the organizations are resilient the more resilient the community will be.

The ecological component, the biosphere of sustainability, is perhaps the widely discussed dimension of sustainability. The eye-opening report of "Our Common Future" (Brundtland, 1987) paved many governments, institutional bodies, and individuals to have a second look at their activities through the ecological lens. However, when it comes to defining and measuring, this component of sustainability was found to be the most challenging among the three of them (Husgafvel et al., 2017). As the environmental challenges mushroomed since

conventions, and policy frameworks (e.g., Vienna Convention of 1985, Espoo Convention 1991, Kyoto Protocol of 1992, Paris Agreement of 2015, Hyogo Framework for 2005_2015, Sendai Framework for 2015-2030 etc.) have been staged from time to time in ensuring ecological sustainability. From a theoretical perspective, a gigantic number of scholarly works have generated an ample number of definitions and measures to assess environmental sustainability. The common aim of almost all these models is to provide relevant information for decision-makers. There, the environmental impact of each decision is expected to be assessed within the frame of organizational performance. Next, they are evaluated against their impact on the surrounding environment, society and economics. In such a way environmental sustainability plays a central role in the overall decision-making cycle of the large community; thus, can look upon a tenable approach towards community resilience (Okvat & Zautra, 2011; Rivera-Muñoz, 2021; Shenk et al., 2019). In congruence with discernible interrelatedness between lead constructs, the authors of the present work are motivated in offering their insights on an enduring path towards community resilience: environmental sustainability.

Community Resilience

Community resilience is defined as a type of social-ecological resilience that contains elements of engineering resilience and explicitly includes interactions among ecological and human subsystems (O'Shea et al., 2020). Yet, the multidimensional nature of the construct has left it to evolve with no common consensus about the meaning of the community lens of resilience (Rivera-Muñoz, 2021). Alternatively, Mileti (1999) interpreted community resilience as the community's ability to withstand an extreme event without suffering devastating losses, damage, diminished productivity or quality of life without a large amount of assistance from outside the community. Similarly, community resilience was viewed as the capability of individuals or systems [such as families, groups, and communities] to cope successfully in the face of significant adversity and risk (Lyons et al., 1998). Likewise, the majority of definitions draw on experiences from past disasters and emphasize the importance of social relationships in promoting desired outcomes for communities and draw on ideas of communicative planning towards sustaining the ecosystem while enhancing social capital (O'Shea et al., 2020).

Measuring community resilience is recognized as an essential step towards reducing disaster risk and being better prepared to withstand and adapt to a broad array of natural and human induced disasters (Burton, 2014). Community Resilience Assessment (CRA) tools in general transform resilience into a more tangible and measurable concept and help understand what constitutes community resilience by, among other things, investigating different environmental, social, economic, physical, and institutional elements of a community that are related to resilience (Rivera-Muñoz, 2021). They encourage thinking about future uncertainties and provide a lens through which complexities of communities as socio-ecological systems can be better understood (Fiksel et al., 2014; Hoff, 1998; Pearsall, 2012). Table 1 presents a list of selected CRA tools widely recognized in community resilience.

DRI	2015	Earthquakes and Megacities Initiative (EMI)	Global	Multiple	Local, regional and national government agencies	Khazai et al. (2015)
CDR	2015	Academia, Yoon et al.	Korea	Multiple	Local authorities and public	Yoon et al. (2015)
NIST	2015	National Institute of Standards and Technology	US	Multiple	Local authorities	NIST (2015a,b)
RELi	2015	American National Standards Institute (ANSI)	US	Multiple	Developers	C3LD (2015)
TCRI	2015	Australia Netherlands Water Challenge	AU	Multiple	Local, state and national government, international organizations	Perfrement and Lloyd (2015)
CoBRA	2014	UNDP|Drylands Development Centre	Horn of Africa	Drought	Community leaders/governmental and non-governmental organizations	UNDP (2014a,b)
CRF	2014	The Rockefeller Foundation, Arup	Global	Multiple	Local authorities	TRF (2014)
FCR	2014	International Federation of Red Cross and Red Crescent Societies (IFRC)	Global	Multiple	IFRC programs and national societies (of IFRC)	IFRC (2014)
Grosvenor	2014	Grosvenor, real estate investor (industry)	Global	Multiple	Company officials, city authorities, aid agencies	Barkham et al. (2014)
ICLEI	2014	ACCCRN, Rockefeller Foundation, ICLEI	Global	Natural	Local authorities	Gawler and Tiwari (2014)
UNISDR	2014	IBM and AECOM	Global	Natural	Local authorities, insurance companies, private industry	UNISDR (2014)
CRS	2013	Community and Regional Resilience Institute (CARRI); Meridian Institute; Oak Ridge National Laboratory	US	Multiple	Community leaders	CARRI (2013) and White et al. (2014)
LDRI	2013	Academia, Orencio and Fujii	The Philippines	Multiple	Local authorities	Orencio and Fujii (2013)
USAID	2013	USAID	Global	Poverty	Government and non-governmental organizations, donors	Frankenberger et al. (2013)

CDRST	2012	Torrens Resilience Institute	AU	Multiple	Planners, local authorities, community members	Arbon et al. (2012, 2016)
BCRD	2011	RAND corporation	US	Health	Community leaders/governmental/non-governmental organization	Chandra et al. (2011)
CART	2011	TDC/University of Oklahoma	US	Health	Community-based organizations	Pfefferbaum et al. (2011)
ResilUS	2011	US, Resilience Institute is part of Western Washington University's Huxley College of the Environment	US, Japan	Mainly Earthquake	Local authorities	Miles and Chang (2011), based on a prototype developed in 2006
ICBRR	2012	Palang Merah Indonesia (PMI) and Canadian Red Cross (CRC)	Indonesia	Multiple	Local authorities and public	Kafle (2010, 2012)
BRIC	2010	Academia, Cutter et al.	US	Multiple	Local authorities	Cutter et al. (2014) and Cutter
CDRI2	2010	Academia, Shaw et al.	South/South East Asia	Multiple	Community leaders/local authorities	Shaw et al. (2010)
CERI	2010	AWM (Advantage West Midlands) Strategy	UK	Recession	Local authorities	Team (2010)
CDRI	2010	Coastal Services Center and The National Oceanic and Atmospheric Administration	US	Multiple	Community leaders	Peacock et al. (2010)
CRI2	2010	Academia, Sherrieb et al.	US	Multiple	Local authorities	Sherrieb et al. (2010)
CRI	2010	MS-AL Sea Grant/National Oceanic and Atmospheric Administration (NOAA)	US	Coastal (natural)	Planners, policymakers, emergency service providers	Sempier et al. (2010)
PEOPLES 2010	2010	National Institute of Standards and Technology (NIST)	US	Multiple	Planners and local authorities	Renschler et al. (2010b)
CRT	2009	Bay Localize project of the Earth Island Institute	US	Recession; natural	Planners, community organizations, individuals, training centres	Schwind (2009)
SPUR	2009	San Francisco Planning +	US	Earthquake	Local authorities, builders and developers	Poland (2009)

		Urban Research Association				
CARRI	2008	Community and Regional Resilience Institute	US	Multiple	Community-based organizations	Cutter et al. (2008)
Hyogo	2008	UN/OCHA and UN/ISDR	Global	Natural	Local and national authorities, community-based organizations, non-governmental organizations	UN/ISDR (2008)
DFID	2009	Department for International Development and other agencies	UK	Natural	Academia, government and civil society organizations	Twigg (2009)
USIOTWT	2007	U.S. Indian Ocean Tsunami Warning System Program and other institutes	South/South East Asia	Coastal (natural)	Governmental and non-governmental organizations; International aid agencies, banks, and donors	USIOTWSP (2007)
THRIVE	2004	Prevention Institute	US	Racial health disparity	Local government, NGOs	THRIVE (2004)
CRM	2000	Canadian Centre for Community renewal	Canada	Recession	Local authorities, community members	Rowcliffe et al. (2000)

Table 1. Basic Information of Selected CRA Tools
Source: Sharifi, A. (2016). A critical review of selected tools for assessing community resilience. Ecological Indicators, 69, 629–647. https://doi.org/10.1016/j.ecolind.2016.05.023

Environmental Sustainability

Innumerable scholars and bodies have defined environmental sustainability differently. All these definitions are centered on the hot environmental issues that we are confronting today. (Pettenati, 2015) stated that environmental sustainability is concerned with whether environmental resources would be protected and maintained for future generations. This, to a greater extent, is identical to Brundtland's definition of sustainability except the present one specifies resources as environmental resources. He noted five key issues associated with environmental sustainability that can be treated as indicators of it. These included a shift to renewable resources, protecting the health of ecosystems, avoiding excess pollution, target welfare not GDP and intergenerational decisions. These indicators somehow shelter the general macro-level ecological challengers while some of the common themes such as water & waste management, soil erosion, global warming etc. They are not openly addressed. Environmental Sustainability was seen as a state in which the demands placed on the environment can be met without reducing its capacity to allow all people to live well, now and in the future (Plaschkes, 2013). This definition is also closely associated with the resource consumption of present and future generations. Thus, dictating the theme of the former definitions. A similar idea is held by the Australian department of environment and climate change and water (2007). Accordingly, environmental sustainability is living within the limits of what the environment can provide (Department of Environment and Climate Change NSW, 2008). Again, this definition too emphasizes controlling/ managing the demand for natural resources. The Commissioner of Environmental Sustainability Victoria (2018) stated that environmental sustainability is the ability to maintain the qualities that are valued in the physical environment. Having mentioned the "qualities", this definition of environmental sustainability qualifies to represent strong sustainability theories that address the quality of life.

Conserving the environment while catering to the economic and social demands was viewed as environmental sustainability (Christen, et al., 2013). Attempting to develop agricultural technologies to enhance environment-friendly farming, they identified nature conservation, food production, energy production and investments as indicators of environmental sustainability. In contrast, to many other definitions, Christen et al.'s (2013) interpretation of environmental sustainability emphasis the need to cater to economic and social demands within a tolerable level of natural resource consumption. From the practitioner's perspective, their understanding appears to be more realistic than the others who viewed environmental sustainability merely from the ecological angle which is well-known to be merged with other two dimensions of sustainability; economy and society.

The essence of all these definitions stress minimizing the impact of humans on the natural environment. However, the measurements of environmental impacts are not straightforward, as the reduction of an emission that contributes to one environmental problem causes higher emissions contributing to another environmental problem. This may apply to local and global environmental impacts as well, such that improvements in environmental performance locally might lead to increased environmental burden in the broader global context (Husgafvel et al., 2017). This is because the environmental issues reflect a nexus between almost all the natural resources. Thus, manipulation of one ultimately leads to an imbalance in the others which could only possibly manage with a comprehensive global environmental agenda.

E lkington (1997) in his famous work "Cannibals with Forks: The Triple Bottom Line of 21st Century Business" stated three waves of public pressure that shaped the environmental agenda.

1. Understanding the environmental impact and constraints associated with the natural resources supply.
2. Realization of the need for new kinds of production technologies and new kinds of products
3. Recognition that sustainable development will require profound changes in the governance of corporations & in the whole process of globalization, putting a renewed focus on government and civil society.

Hence, it is obvious that any convention, agreement and framework that embarks on community resilience should primarily set up global agendas for ensuring environmental sus-

Approaching Community Resilience through Environmental Sustainability

Pfefferbaum et al. (2005) interpreted community resilience as the ability of community members to take meaningful, deliberate, collective action to remedy the impact of a problem, including the ability to interpret the environment, intervene, and move on. In congruence with that, authors here argue that the upliftment of environmental sustainability would be a more concrete and realistic approach for strengthening community resilience. Magis (2010) introduced community resources as the key determinant of community resilience and community wellbeing. Natural capital is recognized as the principal component of community resources due to the inseparable link between human existence and natural ecosystems (Mccrea et al., 2015). Natural capital and environmental sustainability are closely associated with each other since the environmental sustainability research domain embarks on;

- Preservation of the natural environment,
- Conservation of the natural environment,
- Avoidance or minimization of environmental pollution,
- Practising Green management, and
- Fostering a culture characterized by a green mindset

as the means of achieving ecological sustainability (Husgafvel et al., 2017; Morelli, 2011; Christen et al., 2013; Harris & Goodwin, 2001; Sachs, 1999). Correspondingly, the characteristics of a resilient community included management of natural assets along with supportive arms of the community's social capital, physical infrastructure, and culturally embedded patterns of interdependence that give it the potential to recover from dramatic change, sustain its adaptability, and support new growth that integrates the lessons learned during a natural disaster (Kais & Islam, 2016). Thus, a reciprocal connection is suggested between community resilience and environmental sustainability. The suggested theoretical insight is further confirmed by the conceptualization of community resilience based on the 'critical triangle' of three major community capitals—economic, social, and environmental capital (Wilson, 2021). Community resilience of a certain community is largely vested in the extent to which these capitals are developed and how these capitals interact. A community is said to be strongly resilient when all three capitals are well developed in it, while it is weakly resilient when only one or no capital is well-developed in it, and a community is moderately resilient when two capitals are well developed (Chirisa et al., 2019; Kais & Islam, 2016; Mccrea et al., 2015; Shenk et al., 2019; Whitman, 2018). Nevertheless, literature on strong sustainability models emphasize that environmental sustainability is fundamental to the rest of the sustainability spheres (economic & social) while interactions and interdependencies among.

three spheres of sustainability should not be overlooked (Saharum et al., 2017). Emphasizing the prevailing theoretical support and the rising threat of natural disasters towards the survival of global communities, the authors propose environmental sustainability as a leading pathway towards revitalizing community resilience (Figure 1).
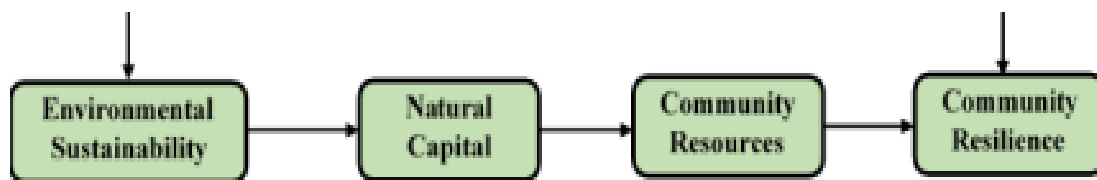

Figure 1 Proposed Conceptualization Between Environmental Sustainability and Community Resilience

Implications

Natural disasters risk a community's survival in multitudinous ways. Living within the limits of what the environment can provide would be the only amicable way to revitalize the community resilience in face of provoking natural threats such as extreme and abnormal weather conditions, the rise of sea level, global warming, and shifts in seasonality so on. Not only community resilience found sensitive to the direct impacts of these natural disasters, but it is also distressed by social, cultural, economic, and political variations caused by natural disasters. Environmental sustainability is the theoretical arena that emphasizes developing natural.

capital through preservation and conservation of natural resources in an eco-friendly way. Assessing the conceptual properties and practical implications of environmental sustainability, the authors of the present work offer their insight to approach the community resilience through environmental sustainability. Here the green mindset of the community is revitalized to entrust their right to live. The present work contributes to community resilience by drawing a clear linkage between environmental sustainability, natural capital, community resources and community resilience.

List of References

Agger, A. (2021). Democratic innovations in municipal planning: Potentials and challenges of place-based platforms for deliberation between politicians and citizens. Cities, 117, 103317. Ajor, L., & Alikor, L. O. (2020). Innovative mindset and organizational sustainability of small and medium enterprises in rivers state, Nigeria. British J. Manag. Market. Stud, 3(1), 20–36.

Amul, G. G. H., & Shrestha, M. (2015). A tale of cities: Local champions for global climate action. S Rajaratnam School of International Studies (RSIS) Commentary. Australian department of environment and climate change and water (2007). - Google Search. (n.d.). Retrieved August 31, 2021, from https://www.google.com/search?q=Australian+department+of+environment+and+climate+ch an-ge+and+water+(2007).&oq=Australian+department+of+environment+and+climate+chang e+and+water+(2007).&aqs=chrome..69i57j69i60.188727j0j15&sourceid=chrome&ie=UTF-8

Becker, P. (2014). Sustainability science: Managing risk and resilience for sustainable development. Newnes.

Bremer, L. L., Falinski, K., Ching, C., Wada, C. A., Burnett, K. M., Kukea-Shultz, K., Reppun, N., Chun, G., Oleson, K. L., & Ticktin, T. (2018). Biocultural restoration of traditional agriculture: Cultural, environmental, and economic outcomes of Lo 'i Kalo restoration in He 'eia, O 'ahu. Sustainability, 10(12), 4502.

Brinkmann, S. (2016). Diagnostic cultures: A cultural approach to the pathologization of modern life. Routledge.

Brundtland, G. H. (1987). What is sustainable development? Our Common Future, 8(9). Burton, T. A. (2014). Stability & periodic solutions of ordinary & functional differential equations. Courier Corporation.

Chirisa, I., Paradza, N., & Mukarwi, L. (2019). Consilience as the basis for Community Resilience: Lessons for Zimbabwe. Community Resilience under the Impact of Urbanisation and Climate Change: Cases and Experiences from Zimbabwe, 17.

Commissioner for Environmental Sustainability Victoria. (n.d.). Retrieved August 31, 2021, from https://www.ces.vic.gov.au/

Contributors

WDNSM TENNAKOON

Ms. Tennakoon is currently serving as a Senior Lecturer in the Department of Business Management, Faculty of Business Studies and Finance, Wayamba University of Sri Lanka. Her research interests include Psychological Capital, Career Management, Entrepreneurship, and ICT for Business. Niranjala obtained her first degree in B.Sc. Business Administration from the University of Sri Jayewardenepura and completed her MBA at the University of Peradeniya. Presently, she is reading for Ph.D. at the Department of Human Resources Management, University of Kelaniya.

MPN JANADARI (PhD)

Dr. Janadari obtained her Ph.D. from the University Utara, Malaysia, M.Sc. in Management from the University of Sri Jayewardhenepura, and Bachelor's degree in the field of Human Resource Management from the University of Kelaniya Sri Lanka. She is also one of the members of the Association of Accounting Technicians of Sri Lanka. Currently, she is serving as the Head of the Department of Human Resource Management of the University of Kelaniya and as the Deputy Director Centre for Distance and Continuing Education, University of Kelaniya. Her teaching and research interests include Human Resource Management, Organizational Behavior, Economics, Management, and Research Methodology.